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<p>(54) Title: METHOD AND DEVICE FOR DISABLING SOUND AND/OR VISUAL DISPLAY</p> <p>(57) Abstract</p> <p>A method of controlling the viewing of television programmes according to their content involves sending codes using an auxiliary data channel which indicate the level of sexual, violent, distressing, etc. content. These codes are assembled into an extension packet of a teletext signal and detected at a receiver. The receiver is programmed by entering corresponding codes which indicate allowable or forbidden content and cause the display to be blanked and the sound to be muted in dependence on the transmitted codes. A system, programme source and receiver are also described.</p> <div data-bbox="151 1738 659 1881"><table border="1"><tr><td data-bbox="151 1738 396 1881"><b>PH</b> US010216W</td><td data-bbox="396 1738 659 1881">DO SIER</td></tr></table></div>			<b>PH</b> US010216W	DO SIER
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## METHOD AND DEVICE FOR DISABLING SOUND AND/OR VISUAL DISPLAY

## DESCRIPTION

5           The invention relates to a method of and apparatus for enabling the inhibition of television programme display in dependence on the programme content.

10           A law has been passed in the USA which requires that all television receivers having a display above a certain size sold from 1998 will have to have a means of enabling parents to prevent children from viewing coded programmes containing violence, sex, and bad language. A so called "V-chip" is proposed which will monitor a code transmitted with the television signal and disable the television receiver when the code indicates forbidden programme material including scenes of violence, sex or other matter which might be  
15           considered objectionable by some audiences or unsuitable for children.

          In the US V-chip system, the broadcaster rates each programme in four censorship categories. The values for each category are then transmitted simultaneously as part of the extended data services (EDS) of the Closed  
20           Captioning (CC) system. The values are transmitted for as long as the programme is on the air.

          Using an access control mechanism, the parent sets a threshold for each category. If a rating exceeds the pre-authorised value, the V-chip; suppresses the video and audio signals. As the reaction of the V-chip decoder is near  
25           instantaneous, the system can easily handle channel hopping. Moreover, the parent does not have to worry about missing content warnings in TV guides or at the start of programmes.

          The Electronic Industries Association (EIA) defines the four censorship categories and the number of data bits required to transmit the code:

- 30           •       MPAA rating (equivalent to film classifications, e.g. 18, PG, etc.) - 3 bits
- violence content advisory level - 2 bits (which allows for a scale of 0 to

3)

- sexual content advisory level - 2 bits
- mature content advisory level - 2 bits.

The same principles apply to a system being field-tested in Canada but,  
5 at present, the two are not identical.

All American TV sets built after July 1993 had to include a CC decoder to provide subtitling. Current CC decoders (such as the SAA5252 decoder sold by Philips Semiconductors) are capable of blanking out the TV picture when switched into full-text mode. They also have adequate display features to  
10 generate an OSD menu so that parents can program the censorship thresholds.

Unlike teletext, CC data can be recorded and reproduced by a VHS VCR during play-back of a programme. Thus recorded and pre-recorded tapes could also contain censorship data.

In Europe, the question of implementing a V-chip type system is  
15 altogether more complex than North America. The broadcasters are not regulated by a single government, and cultural and language differences mean variance in acceptable moral standards. Then there are the technical issues of coping with a 625-line TV system that has little spare capacity for extra data signals.

20 The obvious solution is to use the American system but this has some disadvantages.

First, for broadcasters, the CC signal would occupy valuable teletext transmission capacity (one line would be permanently lost) and different encoding systems would be required

25 Secondly, it would be very expensive for broadcasters in terms of the duplicate transmission equipment and data bridges (in cable amplifiers) required for both teletext and CC signals.

30 Thirdly, consumer electronics manufacturers would have additional overheads in providing teletext and CC decoding in every TV set and PC TV card.

The concept of enabling a parent to control viewing of a television receiver using information transmitted by the broadcaster is not new and was proposed in W083/02208 published on 23rd June 1983. In that document it is proposed that a code is sent via the teletext signal transmitted with the television signal, the code being formed as a selected row number of a given teletext page. Thus the page number and row number is transmitted in the field blanking period on the occurrence of a possibly offensive event. At the receiver a teletext decoder is permanently set to look for the relevant page and identify the row number as and when transmitted. The particular row numbers indicated particular gradings of sound and vision events.

It is an object of the invention to enable an editorial function to be exercised over the output of a television receiver by a parent or other person in authority over that receiver.

The invention provides a method of enabling an authorised person to disable the sound and/or visual display of a television programme or a part thereof in dependence on the programme content, the method including the steps of;

- i) classifying the whole and/or instantaneous content of a television programme,
- ii) generating code words representing the allocated classification, and
- iii) inserting the code words in an extension packet of a teletext signal multiplexed with the television signal representing the programme.

An advantage of using the teletext transmissions to convey the code is that in many countries the infrastructure is already in place for inserting the teletext signal into the transmitted signal and that a large number of television receivers now incorporate teletext decoders. Thus there is a viewer demand for the teletext service and an editing facility can be relatively easily added to both at the receiver and at the programme originating source.

Thus to enable the disabling of the sound and/or visual display the

programme provider monitors the content of the programme and provides and appropriate indication of its content by means of a code inserted in an extension packet of an associated teletext signal. The person in control of the television set can then use this code to determine whether or not such programmes should be displayed (visually and/or orally). By using an extension packet to convey the code it is not necessary to cause a teletext decoder to look for a particular transmitted page in order to carry out the editing function and consequently the teletext decoder can continue with the task of looking for pages selected by the viewer, for example particularly where mixed text and picture or "in vision" functions are selected.

When the teletext signal is as defined in the World system Teletext Standard the extension packet may be packet 8/30 format 1.

This packet is normally transmitted once per second and consequently the classification can easily be changed at that rate if desired. This enables the occasional occurrence of possibly offensive events to be edited out while still allowing viewing of the programme as a whole. For example, news and current affairs programmes may include distressing or offensive scenes, such as incidents from war zones, as relatively short portions of the programme as a whole. In addition the packet may be transmitted more frequently to enable even shorter events, such as a single word, to be deleted.

The method may include the further step of generating error correction bits for insertion in the packet with the code words. In one embodiment the code words are protected by means of a Hamming code, the code words being 4/8 Hamming coded.

This enables secure reception of the classification codes and consequently minimises the possibility of disabling or allowing display erroneously due to errors in transmission or detection of the classification code words.

One or more classification criteria may be each encoded using code words comprising two bits and an individual criterion may apply to the whole programme or to individual events within a programme. The classification

criteria may include one or more of; violent content, sexual content, distressing content, mature language.

The use of two bit code words for each criterion allows the setting of four possible levels for that criterion. For example taking the criterion of violent  
5 conduct the code 00 could represent zero violent content, the code 01 a low level of violent conduct, the code 10 a medium level of violent conduct, and the code 11 a high level of violent conduct.

One of the code words may represent the region of origin of the programme, and the region of origin may be represented by a four bit code.

10

The indication of the region of origin of the programme may be useful in view of the sensibilities of different cultures. Thus what is offensive to one nationality or religious group may not be to another and consequently the possibility of modifying the meaning of a particular code depending on the  
15 programme origin and the sensibilities of the controlling authority for the TV receiver could be useful. Thus certain communities may have a greater or lesser tolerance of sexual or violent conduct and by providing a region of origin code the level may be accordingly increased or decreased at the location of the receiver.

20

In one embodiment of the method an extension packet containing the code words may be inserted in the closest field blanking period to the beginning and/or end of an event which changes the classification within the programme which is being classified.

25

Normally packet 8/30 format 1 is transmitted approximately once per second. In order to enable individual words, for example, to be disabled this is not sufficiently accurate but by causing the packet to be transmitted also in the closest field blanking interval it will be within 20 milliseconds of the occurrence of the offending word which will be sufficient to enable the word to be suppressed.

30

Alternative words to replace word(s) deemed unsuitable for a selected classification level may be provided.

These words may be transmitted on an auxiliary channel, for example that for the proposed Audetel service which provides an audio assistance signal for describing action in a scene.

5 The invention further provides a method of disabling the sound and/or visual display of a television programme, the method comprising the steps of;

- iv) establishing the authority of the user to define the programme or parts thereof which are to be disabled,
- v) entering into a memory within the television receiver code words corresponding to programme content it is desired to suppress,
- 10 vi) receiving television signals including code words located in an extension packet of a teletext signal multiplexed with the television signals, the code words representing the programme classification,
- vii) comparing the received code words with the entered code words, and
- 15 viii) disabling the sound and/or visual display in dependence on the result of the comparison.

The reception of television signals having an undesirable content for a potential audience, for example children, can be controlled using this method.

20 A television set or video recorder equipped with a teletext decoder which is capable of detecting and decoding extension packets can be used to monitor the classification of a programme according to its content and if a user enters a classification which it is desired to suppress then means can be provided to disable the output of a television set or the record function of a video recorder.

25 Step iv) of the method may be accomplished by entering a Personal Identification Number (PIN). Alternatively or in addition step iv) of the invention may be accomplished by monitoring a physiological characteristic of the authorised person.

A relatively simple method of establishing authority is to issue a PIN

30 which is known only to the authorised user. The entered PIN is then compared with the stored PIN (known only to the authorised user) and if



coincidence is found then the classification codes may be updated.

The disadvantage of using a PIN is that it may be forgotten by the user or may be discovered by non-authorised users. An alternative which requires more complex equipment to implement is to monitor a physiological characteristic of the user, for example fingerprints, voice, facial features, etc.

The code words may be entered using a remote control unit.

Remote control units are frequently provided with television sets and are invariably provided with television sets capable of receiving and displaying teletext data. They have a numeric keypad and thus can be used for entering a PIN and also are provided with other keys whose functions can be used for entering the desired classification codes.

An on-screen display message may be generated to aid the entering of the code words.

By this means a step by step process of entering the codes relating to the different classification criteria can be guided by means of successive displayed instructions and choices.

An on screen display message which informs the viewer of the reason the sound or visual display is disabled may be generated.

Such a message will prevent a viewer from thinking there is a fault in the television set which is causing the display or sound to cease. The messages may, for example, be of the form "sound inhibited because of mature language", or "display inhibited because of distressing event."

An inhibited sound may be replaced with an alternative sound.

Thus an undesirable word or passage could be replaced by a "bleep" or other sound. This would ensure that the viewer realised that it was the control function that caused the word to be inhibited whereas it might be thought that there was a fault if the word was replaced by silence.

The alternative sound may be defined by the received signal.

Thus a range of sounds might replace the original words. For example, the replacing sound may depend on the length of the passage to be replaced. In a further example alternative non-objectionable words might be transmitted

in an auxiliary channel to replace the words not allowed by the selected classification. Such alternative words may be transmitted, for example, using any spare capacity in the proposed Audetel service.

5 The invention further provides a television signal programme source including a teletext signal insertion arrangement, means for classifying television signals to be transmitted according to the programme content they convey, means for generating code words representing the classification allocated to the programme or part thereof, and means for inserting the code words within an extension packet of the teletext signal.

10 Many current television signal sources include a teletext inserter and many service providers include a means for encoding extension packets which are not page related.

The teletext signal may be as defined in the World System Teletext Standard and the extension packet may be packet 8/30 format 1.

15 This extension packet is normally transmitted at approximately one second intervals and is not page related. It is decoded by many teletext decoders and includes information as to the programme provider, first page to be acquired, and a real time clock. There are four bytes within this packet which according to the invention are used for transmitting programme classification codes.

20 Means may be included for changing the classification within the duration of a single programme.

This enables the use of the classification code in two modes. The first is to prevent the reception of a whole programme deemed to be unacceptable and the second is to allow viewing of a programme but to delete possibly  
25 offending events. The length of events which can be excluded depends on the frequency of transmission of the codes. Packet 8/30 format 1 is normally transmitted once per second and thus events can be deleted easily in multiples of a second. In addition it is also possible to transmit additional packet 8/30s  
30 and this will allow a timing to the nearest field blanking period.

Means may be provided for error correcting the code words. The words

may be protected by means of a Hamming code. The code words may be 4/8 Hamming coded.

By error protecting the code words the possibility of falsely inhibiting or allowing display of programmes or events within programmes due to errors in transmission are reduced.

The code words may comprise words defining the level of one or more of the following categories; sexual explicitness, violence, mature language, distressing images or sounds.

These categories may apply to either sound or vision and may apply to the whole programme or to individual events within a programme. For example news programmes may portray high levels of violence in particular reports such as from war zones. They may also contain distressing content, for example pictures of starving people as a result of famine. Other examples of material which may be distressing to some viewers include the display of operations in medical programmes.

The code words may further include a code word indicating the region of origin of the programme.

Different regions and countries have differing conventions and material which is acceptable in one region may not be in a different region. Consequently what is considered a low level of violence in one region may be considered a medium or high level of violence in another region.

The invention still further provides a record carrier containing data representing a television programme, classification code words representing allocated classifications for the whole and/or instantaneous content of the programme, and an associated teletext signal; wherein the code words are contained in an extension packet of the teletext signal.

This enables the classification and control of reproduction of pre-recorded media such as video tapes or optical discs which may be purchased by persons who the authorised person does not wish to watch them. That is, parents may consider their child's choice of video inappropriate. If the record carrier is classified in the same way as broadcast material the same control can

be exercised over their viewing.

The teletext signal may conform to the World System Teletext Standard and the extension packet may be packet 8/30 format.

5 The teletext signal may be converted into a multilevel code to reduce the bit frequency of the teletext signal, in which case, the record carrier may be VHS video tape.

As is well known a teletext signal cannot normally be reliably recorded and reproduced using a VHS video recorder because of its bandwidth limitations. Various proposals have been made to overcome this problem one  
10 of which is disclosed in EP-A-0608960 (PHB 33832). In that application one line of teletext data is spread over five lines in the field blanking period. As a result not all of the teletext data can be stored and a selection of that data is necessary at the time of recording.

One of the uses for this arrangement is the recording of subtitles for the  
15 deaf which are normally transmitted on page 888. There may also be room for recording the classification codes in the same manner but this would, of course, further limit any other teletext information it might be desired to record.

A further proposal for recording teletext data on VHS tapes is disclosed in UK Patent Application No. 9605614.8 (PHB34056). In this proposal the  
20 teletext signal is converted to a multilevel code at a lower frequency. This enables all the transmitted teletext data to be stored and reproduced using a VHS recorder and consequently may be used to enable the classification codes in the extension packets to be stored on the tape.

The invention yet further provides a television receiver suitable for  
25 receiving and displaying television signals from such a television signal source or record carrier, the television receiver comprising a teletext decoder capable of decoding extension packets of the teletext signal, means for extracting the code words representing the classification allocated to the currently received programme, means for entering information representing any programme  
30 classification which represents programmes whose display it is desired to inhibit, means for comparing the entered and received classification, and

means for allowing or disabling display of the programme in dependence on the result of the comparison.

Thus codes corresponding to programmes or parts of programmes which it is desired to suppress are entered into a television receiver. Corresponding codes are received via teletext extension packets and can be compared, within the receiver, with the entered codes to enable control of the display and audio output of the receiver. By including the codes in teletext extension packets it is not necessary to have a teletext decoder permanently looking for a particular page. Instead the teletext decoder can perform its normal function of acquiring user selected pages and it will automatically acquire the non page related extension packets.

Authorization means may be provided for allowing only an authorised person to enter the programme classification.

The authorization means may comprise means for entering a PIN, means for comparing the entered PIN with a stored PIN, and means for allowing the entry of programme codes if the stored and entered PINs are identical.

This provides an easy secure means for ensuring that only an authorised person, for example a parent, can alter the classification codes. It does, however, have the disadvantage that the code may be forgotten or compromised. In the first case it is then difficult to change the classification and in the second case an unauthorised person may be able to change the classification.

Alternatively the authorization means may comprise means for monitoring a physiological characteristic of the authorised person, means for storing the monitored characteristic, means for requesting a change in the acceptable programme content, means for monitoring the characteristic in response to the request, means for comparing the monitored and stored characteristics, and means for allowing alterations to the acceptable programme content in the event of a correct comparison.

Various physiological characteristics may be used, for example

fingerprints, facial characteristics.

Fingerprint detectors are known from their proposed use with credit card verification at point-of-sale terminals. A means for recognising facial characteristics is disclosed in EP-A-0 551 941 (PHB33765).

5 The advantage of using physiological characteristics is that they are difficult to falsify and there is no need to remember PINs or other external data.

Means may be provided for generating an on screen display message to inform the viewer why the sound and/or display has been disabled.

10 This prevents the viewer from assuming there is a fault in the receiver when a programme cannot be received or is interrupted due to its classification.

Means may be provided for replacing unsuitable words with an alternative audio signal. The alternative audio signal may represent alternative unobjectionable words. The alternative words may be received as part of the television signal.

15 Thus where objectionable words occur they may be replaced, for example, by a bleep signal. Alternatively they may be replaced by an alternative unobjectionable word. One way of achieving this is by use of an auxiliary channel in which the programme generator transmits alternative words. An auxiliary channel which could be used is the proposed Audetel  
20 channel for transmitting audio assistance messages for the blind or partially sighted.

Means may be provided for disabling the sound and visual display if no classification code is received with the television signal.

25 This enables control of the reproduction of programmes which have not been classified. This may be either due to their age or because, for example a video tape, they originate from an illicit source. In particular, tapes which are highly objectionable may be produced without a corresponding classification code.

30 The above and other features and advantages of the invention will be illustrated by and be apparent from the following description, by way of

example, of an embodiment of the invention with reference to the accompanying drawings, in which:-

Figure 1 shows a television system for carrying out a method according  
5 to the invention,

Figure 2 shows in block schematic form a television programme source according to the invention.

10 Figure 3 shows a scheme for code words for classifying programmes, the code words being inserted into a teletext extension packet.

Figure 4 shows in block schematic form a television receiver according to the invention.

15

Figure 5 illustrates a process for programming the television receiver to operate according to the method of the invention, and

20 Figure 6 illustrates possible on-screen display messages when the method is invoked.

Figure 1 is a block schematic diagram of a system in which methods according to the invention may be carried out. The system shown in Figure 1 comprises a television signal source 1, a television transmission medium 2,  
25 and a plurality of television receivers 3-1 to 3-n. The television signal programme source may be a normal television broadcast equipment, either terrestrial broadcast or satellite broadcast or could be the programme source for a cable television network. The television programme source includes a teletext inserter and means for entering programme classification codes into an  
30 extension packet of the teletext signal. The transmission medium 2 may take any convenient form for example it could be radio waves as broadcast by a

terrestrial transmitter or a satellite transmitter or could be a cable network for a cable TV system. The television receivers 3-1 to 3-n are connected to the programme source via the transmission medium 2. A further possible programme source 1 is a video tape or disc on which a programme is recorded for replay by a video tape recorder or a video disc player in which the case the transmission link 2 may be simply the tape recorder or disc player and a cable connecting the tape recorder or disc player to the television receiver.

An embodiment of a television signal programme source according to the invention is shown in block schematic form in Figure 2. The television programme source comprises a source of video and audio signals 10 which may for example be a television camera whose video output is fed via a teletext inserter 11 to a transmission network 12. The audio output from the television signal source 10 is fed via a line 13 to a further input of the transmission network 12. A conventional teletext editing system 14 is connected to the teletext inserter 11 and has a further input which is fed from a TV access control equipment 15.

The TV access control equipment 15 is arranged to insert into an extension packet of the teletext signal code words classifying the content of the television programme being created by the signal source 10. The TV access control equipment 15 has a first input 16 which receives data from a TV programme scheduling system. This data will for example provide an overall indication of the content of the programme which can be used to inhibit display of that programme at a receiver. The information may for example define the levels of violence, sexual content, mature language or distressing content which may occur in the programme.

The TV access control equipment 15 has a second input 17 which receives data from pre-recorded material. Pre-recorded material may already include the coding to indicate the type of content present in the programme and may also include instantaneous data to classify particular events during a programme. A keyboard or other input device 18 is connected to a further input of the TV access control equipment 15. This is to enable an operator to



insert appropriate classification codes into a live programme. It is of course necessary to delay the actual transmission of the programme by a short period so that there is time for the operator to enter the appropriate codes at the appropriate times. Such transmission delays are well known for live programmes to enable the broadcasting authority to cut out any undesirable occurrences. For example in live phone in programmes to cut out any libellous or obscene comments made by a person phoning in.

The codes generated by the TV access control equipment 15 or received by it and passed to the teletext editing system are then inserted into an extension packet of the teletext signal. In particular they may be inserted into selected bytes of the packet 8/30 format 1.

Figure 3 shows the content of packet 8/30 format 1 modified to enable the invention to be carried out. Thus it comprises a clock run in period and framing code and bytes containing information identifying it as packet 8/30, as format 1, defining an initial page, a network identity, a time offset, modified julian date and coordinated universal time. There are then four bytes available which are, according to the invention, used to transmit classification codes for the programme. There are then further bytes defining status display.

Four bytes give essentially 32 bits which may be used for encoding data. It is desirable that the classification codes are sent reliably since it would be extremely annoying to a viewer if the programme was interrupted because of faulty reception of the classification codes. This error protection will of course reduce the number of data bits available for encoding the classification codes. In an embodiment according to the invention these four bytes are used to transmit 16 message bits which are 4/8 Hamming coded for error protection. A proposal for allocating these message bits is as follows:

- 2 bits for sexual content of the whole programme
- 2 bits for sexual content of individual events within a programme
- 2 bits for violence content within a programme
- 2 bits for violent content of incidents within a programme
- 2 bits for distressing incidents within a programme

2 bits for mature language within a programme and

4 bits for an indication of the region of origin of the programme.

The allocation of two bits for each of the programme content classifications allows four possible levels to be set for that particular content.

5 For example the code 00 could mean no content of that type, the code 01 a low level content, the code 10 a medium level content, and the code 11 a high content level. It is considered useful to have a coding as far as sexual and violent content is concerned for the whole programme and for individual incidents within a programme. Thus for example a parent could decide that

10 programmes having a low or medium sexual content level could be viewed by children so long as the individual events containing sexual content were inhibited. Thus they would set the acceptable programme level to 01, while they may wish to eliminate incidents having sexual content altogether and thus set the event within the programme code to 00. The same considerations

15 apply to violent content within a programme. The distressing content classification is likely to be only of limited duration within a programme. The types of content which are being considered here are for example details where in medical programmes operations are being shown. In this case viewers may well be interested in the medical techniques but find the portrayal of operations

20 distressing. Other instances where distressing content may occur is in news or current affairs programmes. For example interviews with recently bereaved persons may be distressing to some people or pictures showing the effects of famine or other disasters. The mature language content of a programme will normally also be fairly intermittent and hence it is considered that the

25 proscribing of a whole programme on that basis is perhaps not appropriate and that the instances which the mature language occurs can be suppressed.

The region of programme origin code is considered useful in that different areas and countries have different moral codes and consequently what may be classified as a low level of violence in one region may be classified as

30 a medium or even high level of violence in another region. The same considerations may well apply to sexual content and also distressing or mature

language content. It would be possible within the receiver to modify the codes for sexual, violent, distressing and mature language content in accordance with the code for the region of origin of the programme. Thus in region 1 medium level sexual content may correspond to high level sexual content in region 2.

5 It is also possible to bar programmes originating from a given region, for example for political or religious reasons.

Figure 4 shows in block schematic form an embodiment of a television receiver according to the invention. As shown in Figure 4 the television receiver comprises an aerial 20 which feeds a conventional tuner 21 and IF and demodulator block 22. A combined video and blanking signal is available  
10 at the output of the block 22 and is fed to a teletext decoder 23 and a colour decoder 24. The output of the colour decoder 24 is fed to a video selector 25 which also receives a display signal output from the teletext decoder 23 and a blanking signal via an ORgate 26 from the teletext decoder 23.

15 A control processor 27 controls in conventional fashion the operation of the television receiver. It receives control instructions from a remote control unit 28 which the viewer uses to select a particular channel for display and selects other functions such as teletext display or on screen menu displays. The processor 27 will receive from the teletext decoder 23 the codes which are present in the packet 8/30 format 1, that is the codes representing the content  
20 of sexual matter, violent matter, distressing matter or mature language. It will also store within a non volatile memory 29 codes, which have been entered by the user using the remote control unit, which set the levels of sexual, violent, distressing or mature language content which are acceptable for display. The  
25 processor 27 will compare the received codes with the stored codes and depending on the output of that comparison will produce a signal on line 30 which is fed to the video selector 25 via the ORgate 26 and which in appropriate circumstances will cause the video display to be blanked. It will also feed a signal via a line 31 to an audio selector 32 which will cause the  
30 audio output to be muted in appropriate circumstances.

The audio selector produces an output which is fed to the standard audio

circuits represented by block 33 and to a loudspeaker 34, while the video selector 25 produces an output which is fed to standard video circuits 35 and to a display device 36. The audio selector 32 has a further input fed from a terminal 37 to which an alternative audio source may be connected. This may  
5 be for example a tone generator which replaces any offending words by a bleep or it may be connected to an auxiliary channel for example an Audetel channel to provide alternative words for the offensive words. The Audetel channel is a channel proposed for use for providing an audio assistance signal which provides a description of the scene to help the following of a programme  
10 by persons unable to see the display screen clearly or at all, for example blind or partially sighted persons. There will normally be some spare capacity on this channel which will enable an alternative word for possibly offensive words to be transmitted by the broadcaster or to be encoded within any programme source since Audetel will be idle while there is dialogue.

15 Figure 4 shows a television receiver but the invention could equally well be applied to a video recorder. In that case the outputs of the audio and video selector circuits 32 and 25 would be fed to record heads on the video recorder. Thus only programmes having the authorised codes would be recorded on the video recorder. An alternative arrangement for a video recorder would be to  
20 allow recording of the received television programme regardless of the classification codes associated with it, but to record those codes on the tape so that on replay the television receiver is able to react to the output from the video recorder in the same way that it would react to a broadcast programme. In this way a programme can be recorded for viewing by a number of different  
25 persons, each of whom may have a different allowable classification level for particular content. Thus a whole programme may be played back through one television receiver, but only a restricted version through another.

Figure 5 A-E illustrates an on screen display sequence which enables a person to enter the codes into a television receiver. On initial switch on the  
30 on screen display sets out a message which invites the user to enter a personal identification number. This is assuming that authorization is checked

by means of a PIN. The PIN may be burnt into a memory by the manufacturer who then informs the buyer of the number of the PIN so that the owner can initiate the selection of the classification. An alternative is to set the PIN to all zeros at the factory and for a routine to be entered into when the set is first switched on to change the PIN to any number that the user desires. Subsequently when it is desired to change the classification a key to request this is pressed on the remote control unit. This brings up the on screen display message which invites the user to enter the PIN. This is shown as screen 1 in Figure 5A.

The user then enters the PIN and if this is checked correctly the next on screen display is presented. This is numbered 2 in Figure 5A. Initially the television receiver will be set to receive all programmes but by using the television access control system a choice can be made as to whether programmes of a certain type are to be excluded. The on screen display instructs the user which key to press to continue the process, in this instance the red key. The next screen presented, screen 3, invites the user to either press a green key to select the type of programme that can be received or to press a red key if he wishes to leave the state unchanged. Assuming that the green key has been pressed the fourth screen is presented. This invites the user to decide whether programmes with sexual content should be excluded and invites the user to press one button if such matter is to be excluded and a different button if the matter is not to be excluded. Assuming that the user would like to exclude at least some of the sexual content then screen 5 is presented. This will invite the user to exclude either high levels, moderate or high levels or any level. In this particular example the user chooses to exclude high levels only. In this particular instance the user who has chosen to exclude high level only sexual content and is then invited to indicate whether this content should be excluded only when the events occur or whether all programmes which include high levels of sexual content should be completely excluded. Again the user is invited to press red in one instance and green in the other. That completes the programming for sexual content.

A similar process is followed for violent content and is shown on screens 7, 8 and 9. Screens 10, 11 and 12 show the process for enabling distressing content to be excluded. In this particular case it is only excluded for the events in which the distressing content is present and not for the whole programme.

5 It is considered that distressing content is unlikely to be relevant to a whole programme but only to events within a programme. Such distressing content may be for example the showing of operations in medical programmes or the showing of the scenes of accidents or other disasters in news programmes. These incidents will only be a small portion of such programmes and the  
10 programmes can be enjoyed readily with those incidents deleted.

A similar process is shown in screens 13 to 15 which enables the programming of the mature language content which is acceptable. Again this only excludes the specific events rather than the programme as a whole since the occurrence of possibly offensive words is likely to be only a small  
15 proportion of the programme as a whole especially if programmes having excessive sexual or violent content are already excluded. Screens 16 and 17 illustrate the programming of the region of origin. It enables the user to exclude programmes from certain regions if desired. This may be desirable for example where a particular country is transmitting propaganda material which  
20 may not contain excessive sexual content or violent content or even distressing content or mature language, but the authorised person may wish to prevent reception of programmes of such a nature. An alternative use for the region of origin codes is to modify the effective codes for sexual, violent, distressing content or mature language depending on the source of the  
25 programme. Thus from region A it may be desired that the level of sexual content accepted is moderate level only because what is considered moderate in region A may be considered to be high in the region where the receiver is located. This code of changing may be programmed permanently into the receiver or may be settable by the user. Screen 18 is the final screen  
30 presented and confirms the choices which have been made by the user. This screen is similar in content to screen 2 which is presented when the entry to

the access control system is obtained. Thus once a setting has been made this will be displayed on screen 2 at a subsequent access.

It will be apparent that these on screen display messages are by way of example only and that the actual messages may be tailored for particular markets and will of course be in the language of the country in which the set is located. The control processor may, of course, store various on screen displays in a number of different languages, the language choice being made by the user when accessing the on screen displays thus enabling a common control processor to serve sets sold in various different countries.

Figure 6 shows examples of on screen messages which are displayed when the access control system is in operation. Thus, the first screen shows that the programme is not available and states that it is due to high levels of sexual content. This message will of course vary according to the reason for non availability of that particular programme and is defined by the coding associated with it. The second screen shows that the television is temporally blanked due to moderate violent content. Thus, during most of the programme the display will be available, but there is a temporary blanking of the visual display to prevent the viewer seeing violent content. The third screen shows similarly that the display is temporally blanked due to distressing content. The fourth screen shows the picture displayed with a message superimposed upon it stating that the sound has been muted because of mature language.

Consequently, since the viewer is informed that the sound is temporally muted he or she will not assume that there is a fault with the sound channel of the television receiver.

In the particular examples described authorization of the user able to change the coding has been by means of a PIN. There are however various other ways in which a user can be authorised. One possibility would be a fingerprint detector so that it would be necessary for the user to place his or her hand or fingers on a detector pad which compare the fingerprint with one stored in the receiver. This would avoid any problems of forgetting the PIN or the PIN being compromised, for example one of the children discovering the

PIN and resetting the classification codes. A further possibility is to include a video camera on the receiver which will look at the face of the person wishing to change the code. The output of the video camera can be compared with a stored image within the receiver and if coincidence is found then updating of the classification code can be allowed. The latter two methods may be used for example when a personal computer is fitted with a TV programme receiver facility. The necessary processing circuits for the fingerprint or face recognition will then be within the personal computer circuits.

By including the classification codes within an extension packet, in this particular example packet 8/30 format 1, the monitoring of particular pages of a teletext transmission can take place in parallel with the monitoring of the classification codes. For example, when watching a television programme there are sometimes in vision pages of the teletext signal which put up messages on the screen, for example latest scores in football or cricket matches, which would not be monitorable if the classification system required a particular page to be monitored for the classification code. In that case it would be necessary to have at least two acquisition channels in the teletext decoder, one permanently allocated to the classification code page. By using the extension packet it is not necessary to have a specific acquisition channel permanently allocated to the classification code transmission.

From reading the present disclosure, other modifications will be apparent to persons skilled in the art. Such modifications may involve other features which are already known in the design and use of television systems and component parts thereof and which may be used instead of or in addition to features already described herein. Although claims have been formulated in this application to particular combinations of features, it should be understood that the scope of the disclosure of the present application also includes any novel feature or any novel combination of features disclosed herein either explicitly or implicitly or any generalisation of one or more of those features which would be obvious to persons skilled in the art,



whether or not it relates to the same invention as presently claimed in any claim and whether or not it mitigates any or all of the same technical problems as does the present invention. The applicants hereby give notice that new claims may be formulated to such features and/or combinations of such features during the prosecution of the present application or of any  
5 further application derived therefrom.

## CLAIMS

- 5           1.     A method of enabling an authorised person to disable the sound and/or visual display of a television programme or a part thereof in dependence on the programme content, the method including the steps of;
- i)     classifying the whole and / or instantaneous content of a television programme,
- 10          ii)    generating code words representing the allocated classification, and
- iii)   inserting the code words in an extension packet of a teletext signal multiplexed with the television signal representing the programme.
- 15           2.     A method as claimed in Claim 1 including the further step of generating error correction bits for insertion in the packet with the code words.
- 20           3.     A method as claimed in Claim 2 in which the code words are protected by means of a Hamming code.
4.     A method as claimed in Claim 3 in which the code words are 4/8 Hamming coded.
- 25           5.     A method as claimed in any preceding claim in which one or more classification criteria are each encoded using code words comprising two bits.
- 30           6.     A method as claimed in any preceding claim in which one or more of the classification criteria apply to the whole programme.

7. A method as claimed in any preceding claim in which one or more of the classification criteria apply to individual events within a programme.

5 8. A method as claimed in any preceding claim in which the classification criteria include one or more of; violent content, sexual content, distressing content, mature language.

9. A method as claimed in any preceding claim in which a code  
10 word represents the region of origin of the programme.

10. A method as claimed in Claim 9 in which the region of origin is represented by a four bit code.

15 11. A method as claimed in any preceding claim in which the teletext signal conforms to the World System Teletext Standard and the extension packet is packet 8/30 format 1.

12. A method as claimed in any preceding claim comprising the  
20 step of inserting an extension packet containing the code words in the closest field blanking period to the beginning and / or end of an event which changes the classification within the programme which is being classified.

13. A method as claimed in any preceding claim comprising the  
25 step of providing alternative words to replace word(s) deemed unsuitable for a selected classification level.

14. A method of disabling the sound and / or visual display of a television programme, the method comprising the steps of;  
30 iv) establishing the authority of the user to define the programme or parts thereof which are to be disabled,

- 5 v) entering into a memory within the television receiver code words corresponding to programme content it is desired to suppress,
- vi) receiving television signals generated by a method as claimed in any preceding claim ,
- vii) comparing the received code words with the entered code words, and
- viii) disabling the sound and / or visual display in dependence on the result of the comparison.

10

15 15. A method as claimed in Claim 14 in which step iv) is accomplished by entering a Personal Identification Number (PIN).

16. A method as claimed in Claim 14 in which step iv) is accomplished by monitoring a physiological characteristic of the authorised person.

17 A method as claimed in any of Claims 14 to 16 in which the code words are entered using a remote control unit.

20

18. A method as claimed in any of Claims 14 to 17 including the step of generating an on screen display message to aid the entering of the code words.

25 19. A method as claimed in any of Claims 14 to 18 including the step of generating an on screen display message which informs the viewer of the reason the sound or visual display is disabled.

20. A method as claimed in any of Claims 14 to 19 including the step of replacing an inhibited sound with an alternative sound.

30

21. A method as claimed in Claim 20 in which the alternative sound is defined by the received signal.

5 22. A television signal programme source including a teletext signal insertion arrangement, means for classifying television signals to be transmitted according to the programme content they convey, means for generating code words representing the classification allocated to the programme or part thereof, and means for inserting the code words within an extension packet of the teletext signal.

10

23. A television signal programme source as claimed in Claim 22 in which the teletext signal is as defined in the World System Teletext Standard and the extension packet is packet 8/30 format 1.

15

24. A television signal programme source as claimed in Claim 22 or Claim 23 including means for changing the classification within the duration of a single programme.

20

25. A television signal programme source as claimed in Claim 22, 23, or 24 including means for error correcting the code words.

25

27. A television signal programme source as claimed in Claim 25 or Claim 26 in which the code words are 4/8 Hamming coded.

30

28. A television signal programme source as claimed in any of Claims 22 to 27 in which the code words comprise words defining the level of one or more of the following categories; sexual explicitness, violence, mature language, distressing images or sounds

29. A television signal programme source as claimed in Claim 28 in which the code words further include a code word indicating the region of origin of the programme.

5 30. A record carrier containing data representing a television programme, classification code words representing allocated classifications for the whole and / or instantaneous content of the programme, and an associated teletext signal; wherein the code words are contained in an extension packet of the teletext signal.

10

31. A record carrier as claimed in Claim 30 in which the teletext signal conforms to the World System Teletext Standard and the extension packet is packet 8/30 format 1.

15

32. A record carrier as claimed in claim 30 or Claim 31 in which the teletext signal is converted into a multilevel code to reduce the bit frequency of the teletext signal.

20

33. A record carrier as claimed in Claim 32 in which the record carrier is a VHS video tape.

25

34. A television receiver suitable for receiving and displaying television signals from a television signal source as claimed in any of Claims 22 to 29 or a record carrier as claimed in any of Claims 30 to 33, the television receiver comprising a teletext decoder capable of decoding extension packets of the teletext signal, means for extracting the code words representing the classification allocated to the currently received programme, means for entering information representing any programme classification which represents programmes whose display it is desired to inhibit, means for comparing the entered and received classification, and means for  
30 allowing or disabling display of the programme in dependence on the result

of the comparison.

35. A television receiver as claimed in Claim 34 comprising authorization means for allowing only an authorised person to enter the programme classification.

36. A television receiver as claimed in Claim 35 in which the authorization means comprises means for entering a PIN, means for comparing the entered PIN with a stored PIN, and means for allowing the entry of programme codes if the stored and entered PINs are identical.

37. A television receiver as claimed in Claim 35 in which the authorization means comprises means for monitoring a physiological characteristic of the authorised person, means for storing the monitored characteristic, means for requesting a change in the acceptable programme content, means for monitoring the characteristic in response to the request, means for comparing the monitored and stored characteristics, and means for allowing alterations to the acceptable programme content in the event of a correct comparison.

38. A television receiver as claimed in any of Claims 34 to 37 comprising means for generating an on screen display message to inform the viewer why the sound and / or display has been disabled.

39. A television receiver as claimed in any of Claims 34 to 38 comprising means for replacing unsuitable words with an alternative audio signal.

40. A television receiver as claimed in Claim 39 in which the alternative audio signal represents alternative unobjectionable words.

41. A television receiver as claimed in Claim 40 in which the alternative words are received as part of the received television signal.

42. A television receiver as claimed in any of Claims 34 to 41  
5 comprising means for disabling the sound and visual display if no classification code is received with the television signal.



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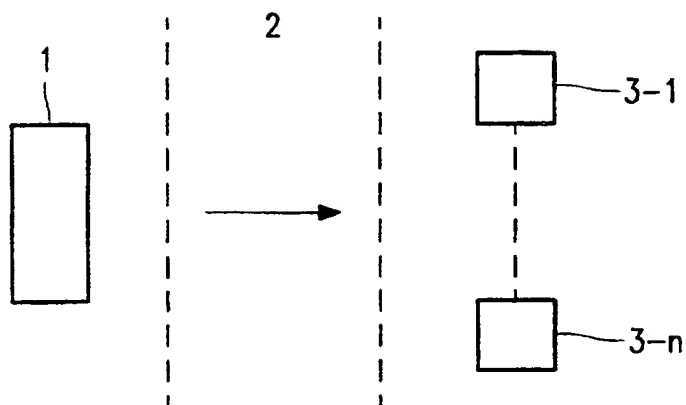


FIG. 1

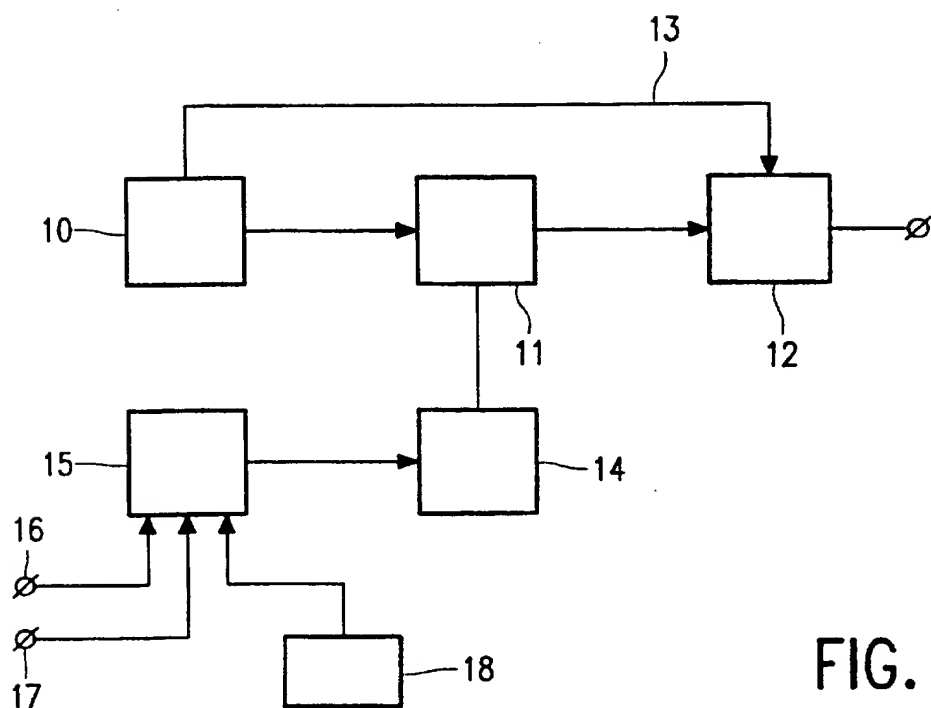


FIG. 2

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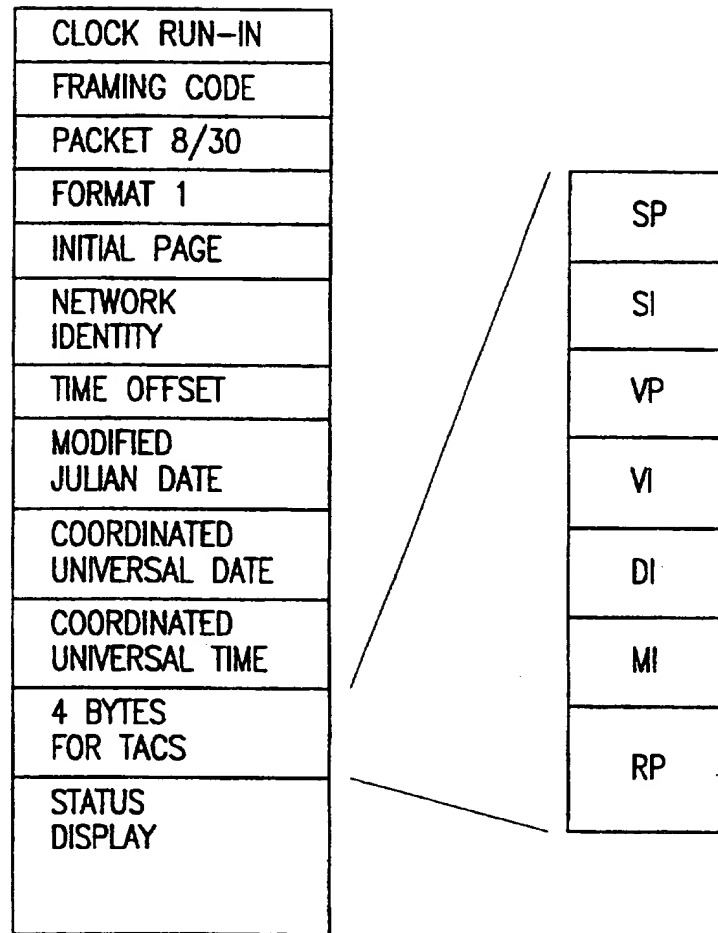


FIG. 3

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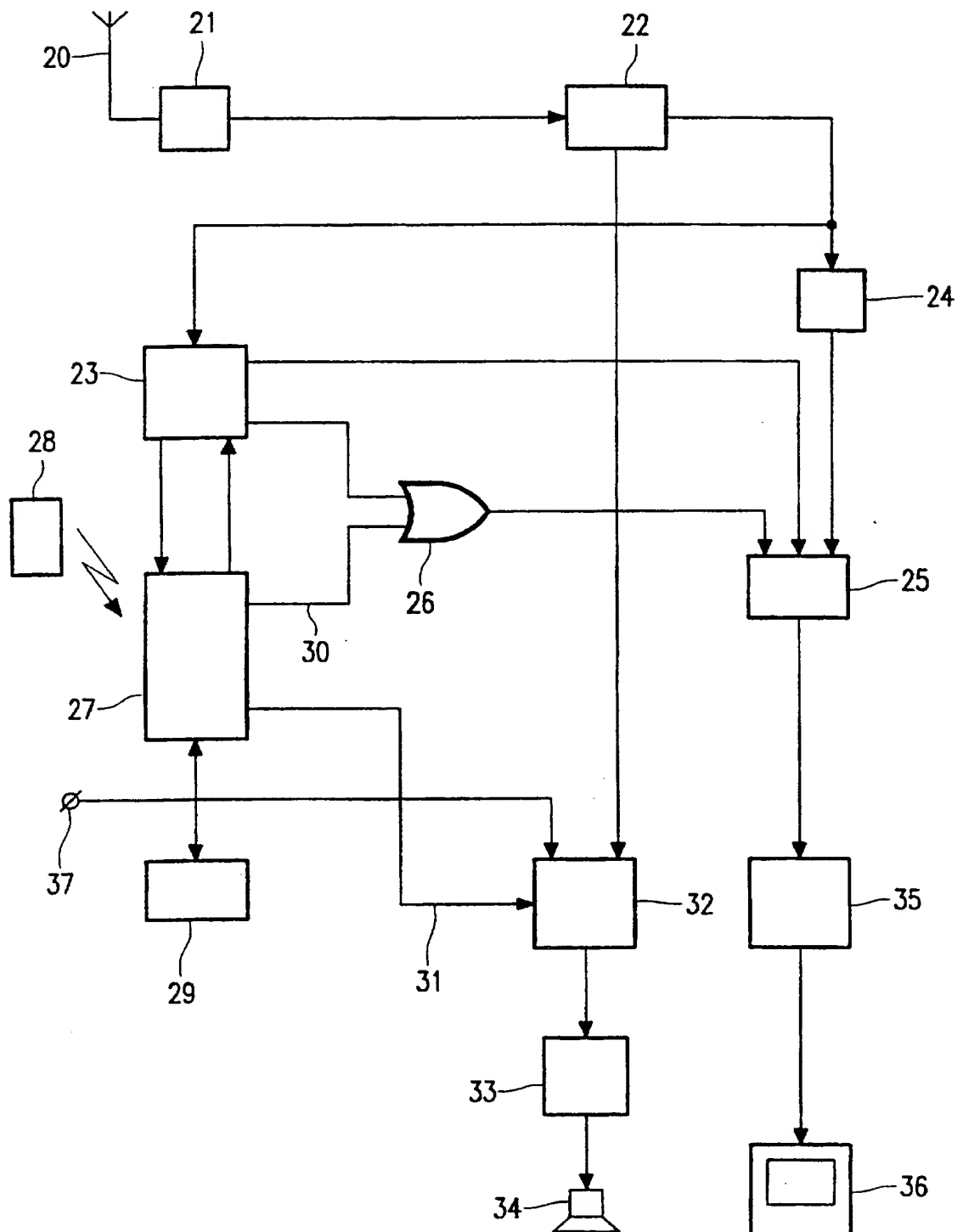
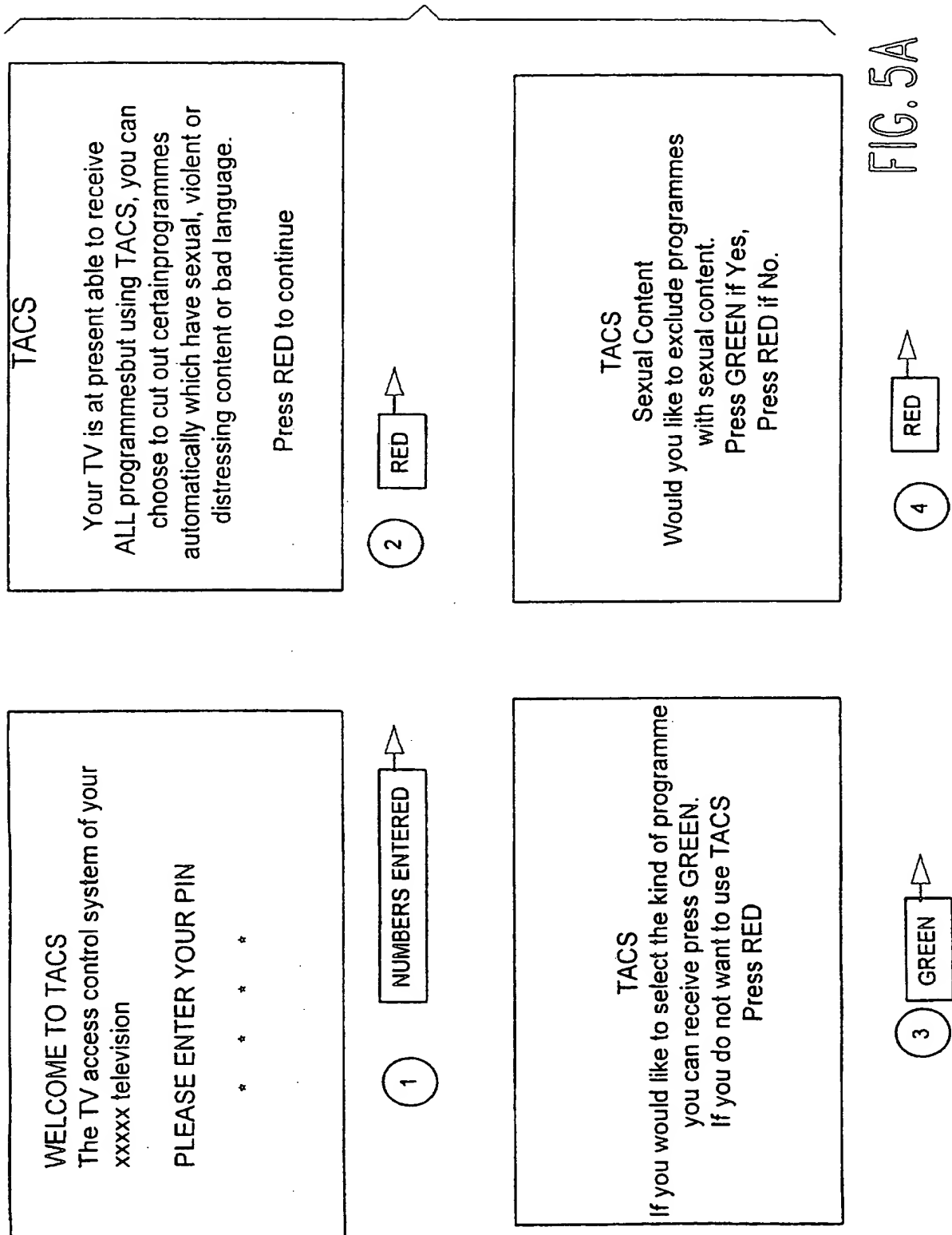
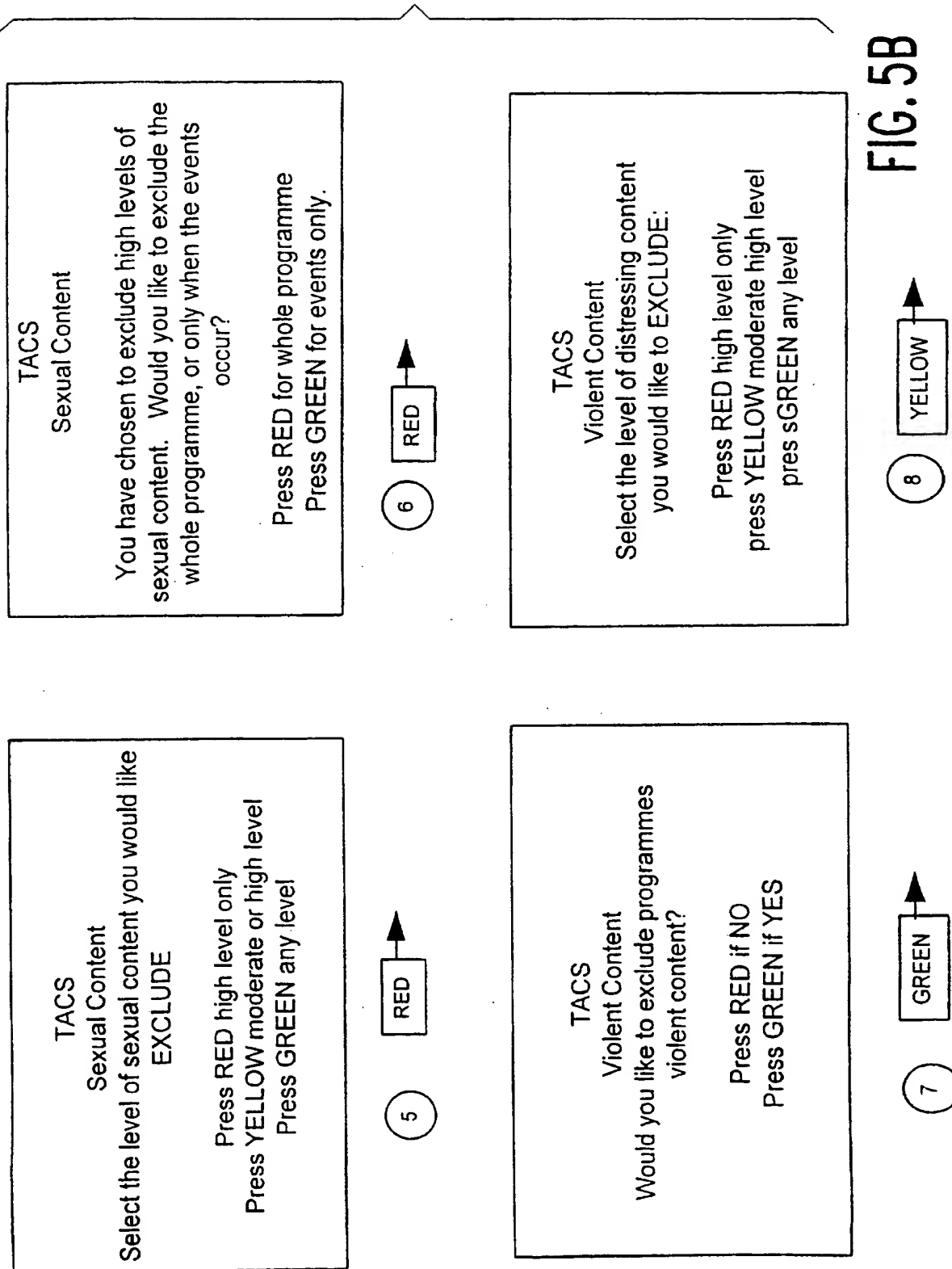


FIG. 4

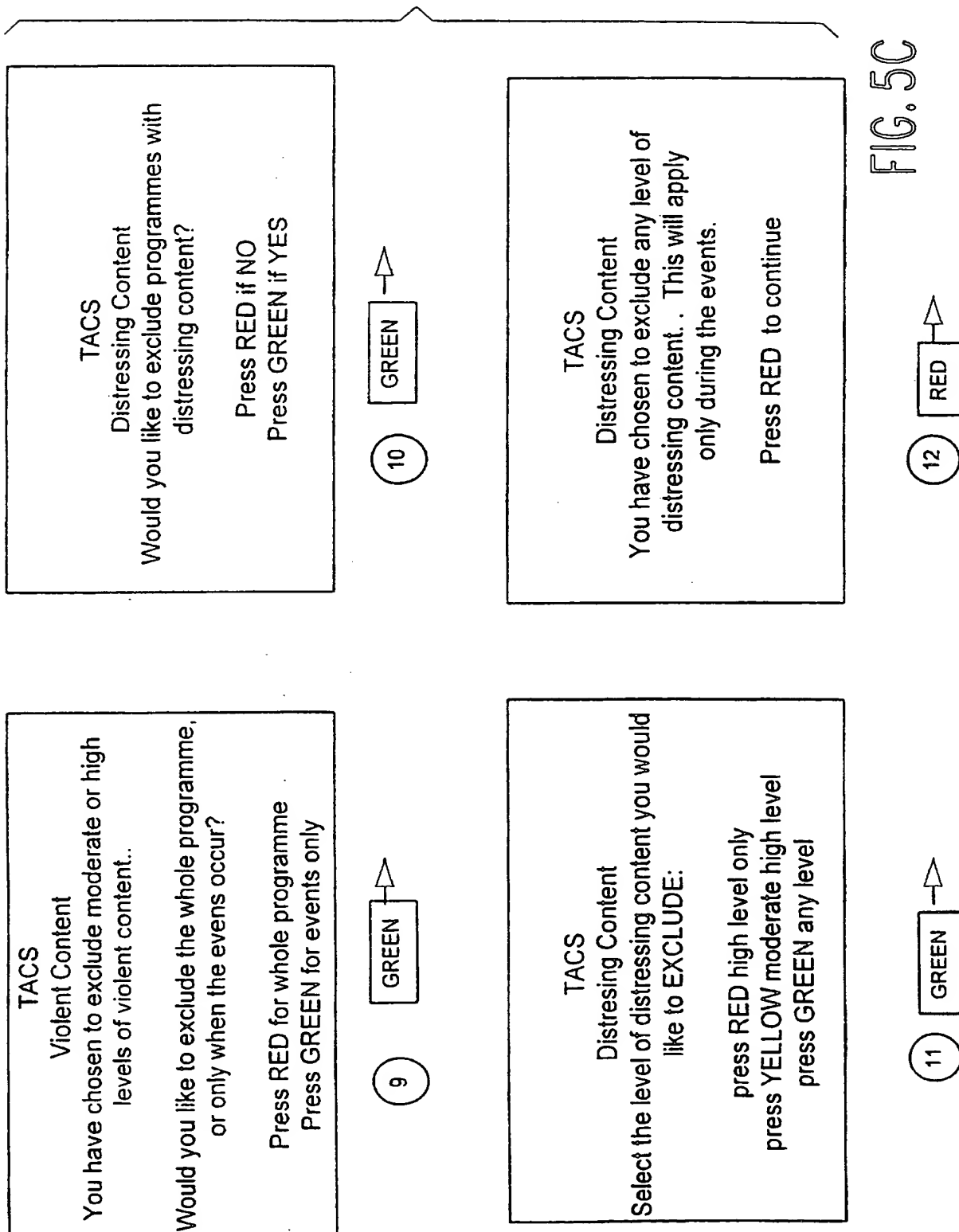
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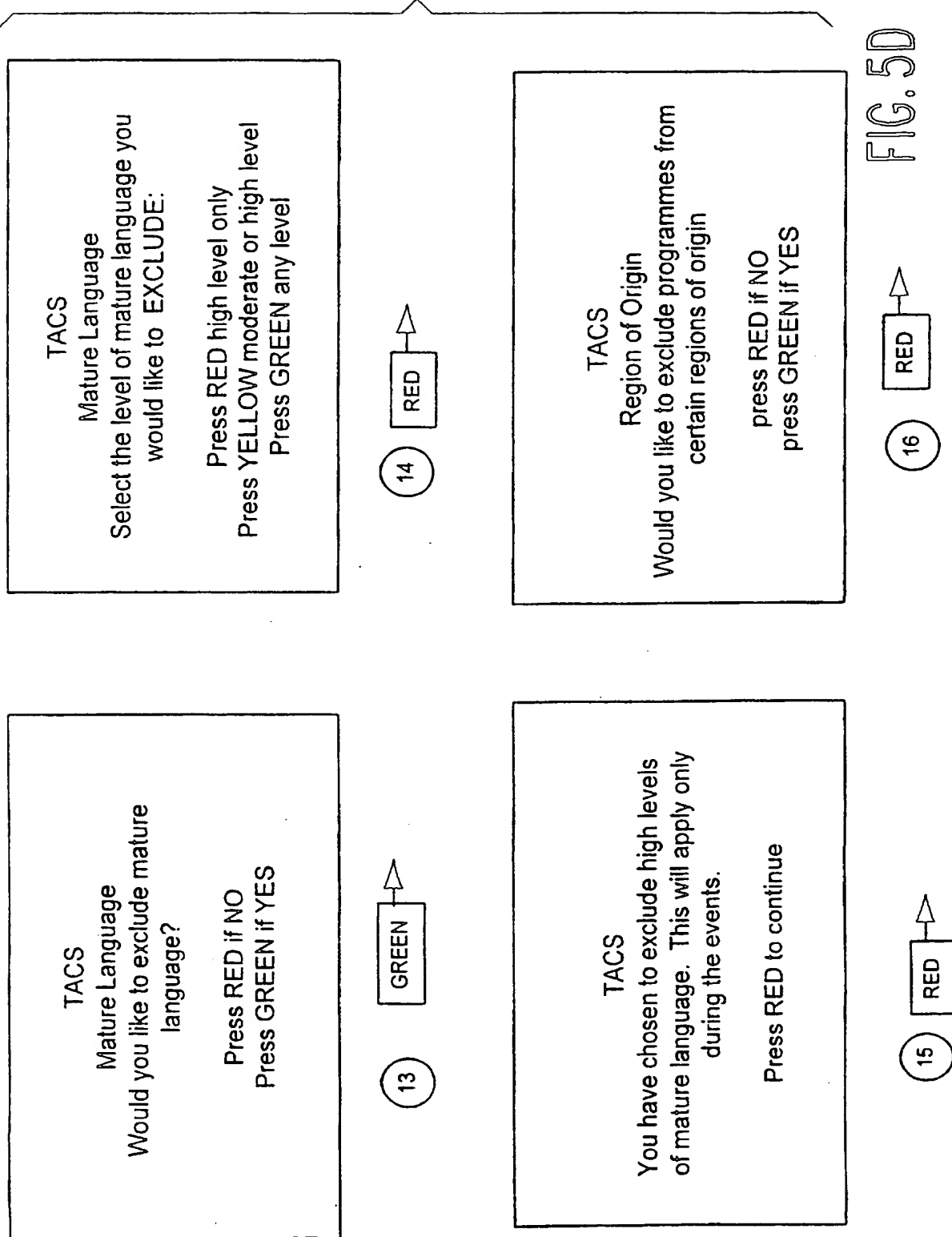
5/9



6/9



7/9



8/9

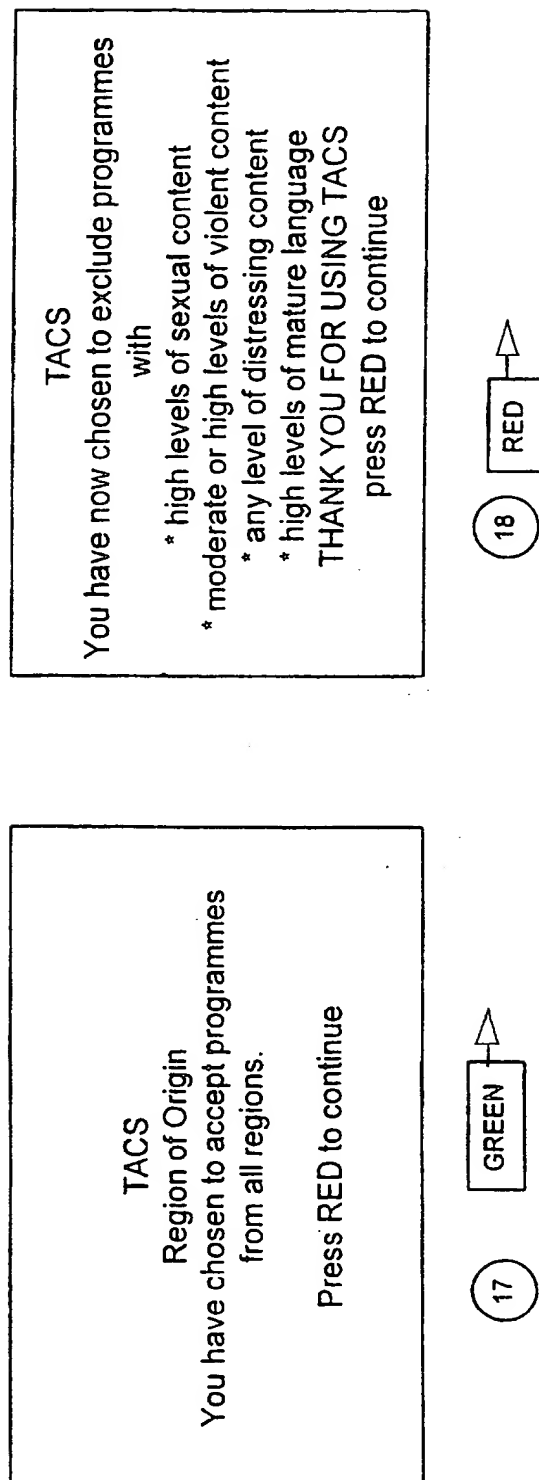


FIG. 5E



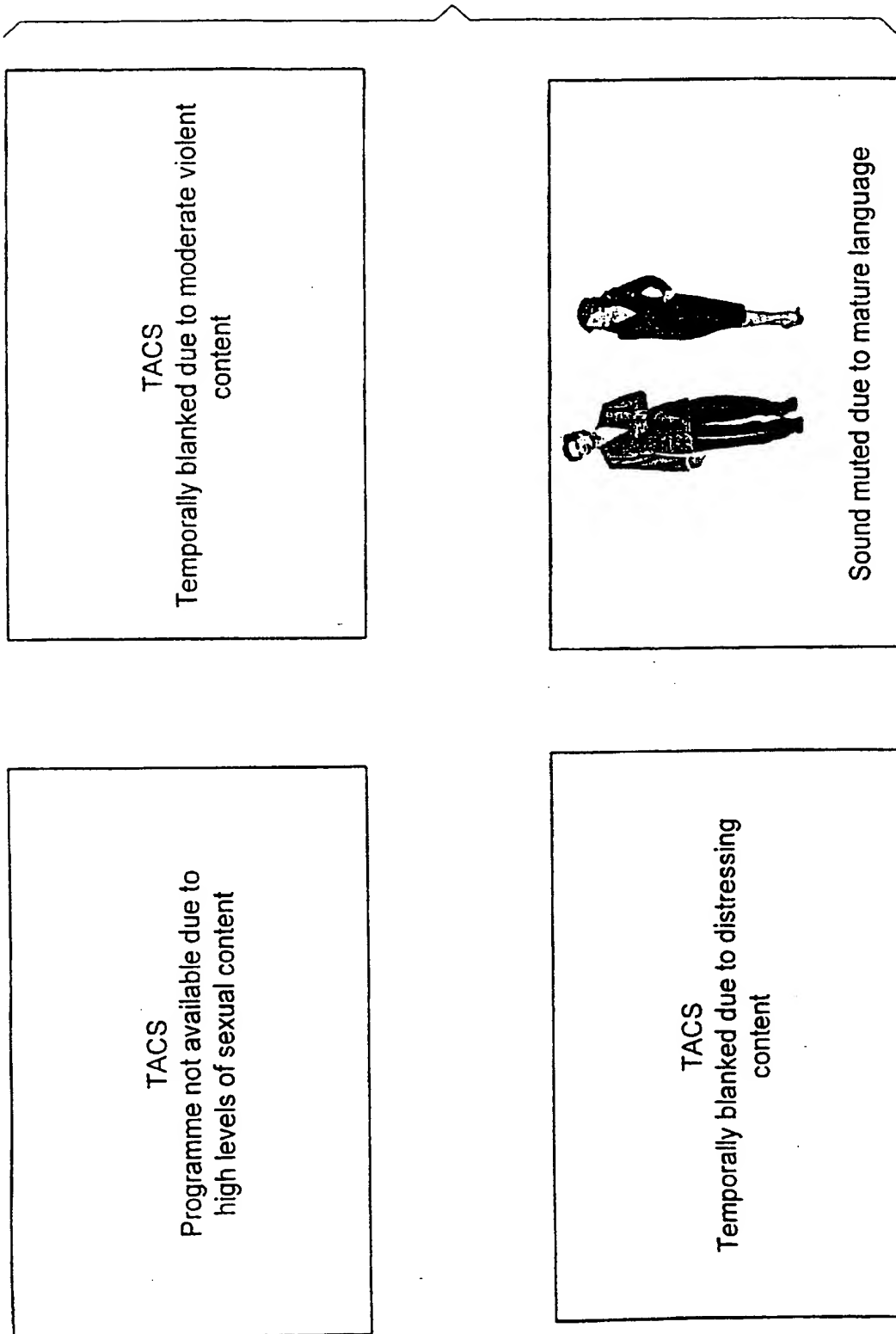


FIG. 6

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 97/01132

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: H04N 7/08

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9641438 A1 (VTECH COMMUNICATIONS, INC.), 19 December 1996 (19.12.96) ---	1-12
X	US 5550575 A (BRETT WEST ET AL), 27 August 1996 (27.08.96) --	1,6,8,9,10, 14-19,22-29, 30-33,35-36, 38
Y	WO 9712485 A1 (PHILIPS ELECTRONICS N.V.), 3 April 1997 (03.04.97) ---	1,6,7,8,14, 15

☒ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

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Date of the actual completion of the international search  30 January 1998	Date of mailing of the international search report  02 -02- 1998
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer  Rune Bengtsson Telephone No. +46 8 782 25 00

## INTERNATIONAL SEARCH REPORT

International application No.

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## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5371795 A (PETER S. VOGEL), 6 December 1994 (06.12.94), column 3, line 68 - column 4, line 4	1,6
Y	column 6, line 64 - column 4, line 12 --	14-15
Y	WO 8302208 A1 (CHARD, FREDERICK, WILLIAM), 23 June 1983 (23.06.83) --	1,6,7,8
Y	EP 0300562 A1 (PHILIPS ELECTRONIC AND ASSOCIATED INDUSTRIES LIMITED), 25 January 1989 (25.01.89), page 3, line 11 - line 16 --	1,6,7,8,14, 15
A	US 5195135 A (DOUGLAS A. PALMER), 16 March 1993 (16.03.93) --	1-42
A	US 4930160 A (PETER S. VOGEL), 29 May 1990 (29.05.90) -- -----	1-42

INTERNATIONAL SEARCH REPORT  
Information on patent family members

07/01/98

International application No.  
PCT/IB 97/01132

Patent document cited in search report			Publication date	Patent family member(s)			Publication date
WO	9641438	A1	19/12/96	AU	6329196	A	30/12/96
US	5550575	A	27/08/96	NONE			
WO	9712485	A1	03/04/97	EP	0793888	A	10/09/97
US	5371795	A	06/12/94	EP	0415966	A	13/03/91
				JP	3504186	T	12/09/91
				WO	8911199	A	16/11/89
WO	8302208	A1	23/06/83	AU	1104583	A	30/06/83
				EP	0096705	A	28/12/83
				US	4605964	A	12/08/86
EP	0300562	A1	25/01/89	DE	3856057	D	00/00/00
				GB	2207314	A	25/01/89
				JP	1041590	A	13/02/89
				US	4908707	A	13/03/90
US	5195135	A	16/03/93	NONE			
US	4930160	A	29/05/90	GB	2209417	A,B	10/05/89
				GB	2209427	A,B	10/05/89
				US	4930158	A	29/05/90

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